



SEQUENCE LISTING

<110> Hildebrandt, Friedhelm
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Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
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Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
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Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
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Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
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Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
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Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
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Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
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Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
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Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
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 Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
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 Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
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 Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
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 Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
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 Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
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Leu Gly Ser Glu Glu His Leu Asp Ala Pro Thr Glu Pro Val Ser Gly
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Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
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Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
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Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
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Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
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His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
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Pro Ser Arg Ala Ser Met Val Leu Leu Gln Ser Ser Gly Phe Pro Glu
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Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
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Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
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Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
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Cys Arg Gly Thr Ser Trp Pro Lys Thr Val Tyr Phe Thr Phe Gln Phe
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Tyr Arg Phe Pro Pro Ala Thr Thr Pro Arg Leu Gln Leu Val Gln Leu
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Asp Glu Ala Gly Gln Pro Ser Ser Gly Ala Leu Thr His Ile Leu Val
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Pro Val Ser Arg Asp Gly Thr Phe Asp Ala Gly Ser Pro Gly Phe Gln
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Leu Arg Tyr Met Val Gly Pro Gly Phe Leu Lys Pro Gly Glu Arg Arg
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Cys Phe Ala Arg Tyr Leu Ala Val Gln Thr Leu Gln Ile Asp Val Trp
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Asp Gly Asp Ser Leu Leu Leu Ile Gly Ser Ala Ala Val Gln Met Lys
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His Leu Leu Arg Gln Gly Arg Pro Ala Val Gln Ala Ser His Glu Leu
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Glu Val Val Ala Thr Glu Tyr Glu Gln Asp Asn Met Val Val Ser Gly
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Asp Met Leu Gly Phe Gly Arg Val Lys Pro Ile Gly Val His Ser Val
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Val Lys Gly Arg Leu His Leu Thr Leu Ala Asn Val Gly His Pro Cys
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Glu Gln Lys Val Arg Gly Cys Ser Thr Leu Pro Pro Ser Arg Ser Arg
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Val Ile Ser Asn Asp Gly Ala Ser Arg Phe Ser Gly Gly Ser Leu Leu
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Gln Gly Lys Gly Pro Gln Asp Val Ser Arg Glu Ser Asp Ala Thr Arg
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Arg Pro His Glu Thr Ala His Val Pro Phe Lys Phe Gln Ser Phe
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Ser Ala Gly Gln Leu Ala Met Val Gln Ala Ser Pro Gly Leu Ser
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Val Pro Thr Lys His Ala Lys Val Leu Phe Arg Ala Ser Gly Gly
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Lys Pro Ile Ala Val Leu Cys Leu Thr Val Glu Leu Gln Pro His
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Val Val Asp Gln Val Phe Arg Phe Tyr His Pro Glu Leu Ser Phe
 1130 1135 1140

Leu Lys Lys Ala Ile Arg Leu Pro Pro Trp His Thr Phe Pro Gly
 1145 1150 1155

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Asp Met Leu Ser Glu Leu Glu Cys His Leu Arg Val Thr Leu Phe Asp
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Val Thr Tyr Lys His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
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Pro Thr Asn Gln Pro Ser Lys Gln Pro Pro Arg Ile Thr Phe Asn Glu
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Pro Leu Tyr Phe His Thr Thr Leu Ser His Pro Ser Ile Val Ala Val
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Val Glu Val Val Thr Glu Gly Arg Lys Arg Asp Gly Thr Leu Gln Leu
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Ser Pro Thr Ser Ala Ala Gln Asp Lys Arg Leu Arg Leu Tyr His Gly
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Thr Pro Arg Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ile Glu Gln
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Asn Lys Phe Met Arg Leu Met Glu Asn Cys Ser Leu Gln Tyr Thr Leu
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Lys Pro His Pro Pro Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn
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740 745 750
Val His Thr Val Val Lys Gly Arg Leu His Leu Thr Leu Ala Asn Val
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770 775 780
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785 790 795 800
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Thr His Thr Arg Ala Gly Gln Gly Pro Gln Ala Ala Gly Gln Glu Ala
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Gln His Ser Val Arg Ala Gln His Ser Arg Asp Leu Gln Val Ile Asp
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Ala Tyr Arg Glu Arg Thr Lys Ala Glu Ser Ile Ala Gly Val Leu Ser
900 905 910
Gln Ala Ile Thr Thr His His Thr Leu Tyr Ala Thr Leu Gly Thr Ala
915 920 925

Glu Phe Phe Glu Phe Ala Leu Lys Asn Pro His Asn Thr Gln His Thr
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 Val Ala Ile Glu Ile Asp Ser Pro Glu Leu Ser Ile Ile Leu Asp Ser
 945 950 955 960
 Gln Glu Trp Arg Tyr Phe Lys Glu Ala Thr Gly Leu His Thr Pro Leu
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 Glu Glu Asp Met Phe His Leu Arg Gly Ser Leu Ala Pro Gln Leu Tyr
 980 985 990
 Leu Arg Pro Arg Glu Thr Ala His Ile Pro Leu Lys Phe Gln Ser Phe
 995 1000 1005
 Ser Val Gly Pro Leu Ala Pro Thr Gln Ala Pro Ala Glu Val Ile
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 Thr Glu Lys Asp Ala Glu Ser Gly Pro Leu Trp Lys Cys Ser Ala
 1025 1030 1035
 Met Pro Thr Lys His Ala Lys Val Leu Phe Arg Val Glu Thr Gly
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 Val Val Asp Gln Val Phe Arg Phe Tyr His Pro Glu Leu Thr Phe
 1070 1075 1080
 Leu Lys Lys Ala Ile Arg Leu Pro Pro Trp His Thr Leu Pro Gly
 1085 1090 1095
 Ala Pro Val Gly Met Pro Gly Glu Asp Pro Pro Val His Val Arg
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 Cys Ser Asp Pro Asn Val Ile Cys Glu Ala Gln Asn Val Gly Pro
 1115 1120 1125
 Gly Glu Pro Arg Asp Val Phe Leu Lys Val Ala Ser Gly Pro Ser
 1130 1135 1140
 Pro Glu Ile Lys Asp Phe Phe Val Val Ile Tyr Ala Asp Arg Trp
 1145 1150 1155
 Leu Ala Val Pro Val Gln Thr Trp Gln Val Cys Leu His Ser Leu
 1160 1165 1170

Gln	Arg	Val	Asp	Val	Ser	Cys	Val	Ala	Gly	Gln	Leu	Thr	Arg	Leu
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Ser	Leu	Val	Leu	Arg	Gly	Thr	Gln	Thr	Val	Arg	Lys	Val	Arg	Ala
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Phe	Thr	Ser	His	Pro	Gln	Glu	Leu	Lys	Thr	Asp	Pro	Ala	Gly	Val
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Phe	Val	Leu	Pro	Pro	His	Gly	Val	Gln	Asp	Leu	His	Val	Gly	Val
1220						1225					1230			
Arg	Pro	Arg	Arg	Ala	Gly	Ser	Arg	Phe	Val	His	Leu	Asn	Leu	Val
1235						1240					1245			
Asp	Ile	Asp	Tyr	His	Gln	Leu	Val	Ala	Ser	Trp	Leu	Val	Cys	Leu
1250						1255					1260			
Ser	Cys	Arg	Gln	Pro	Leu	Ile	Ser	Lys	Ala	Phe	Glu	Ile	Thr	Met
1265						1270					1275			
Ala	Ala	Gly	Asp	Glu	Lys	Gly	Thr	Asn	Lys	Arg	Ile	Thr	Tyr	Thr
1280						1285					1290			
Asn	Pro	Tyr	Pro	Ser	Arg	Arg	Thr	Tyr	Arg	Leu	His	Ser	Asp	Arg
1295						1300					1305			
Pro	Glu	Leu	Leu	Arg	Phe	Lys	Glu	Asp	Ser	Phe	Gln	Val	Ala	Gly
1310						1315					1320			
Gly	Glu	Thr	Tyr	Thr	Ile	Gly	Leu	Arg	Phe	Leu	Pro	Ser	Gly	Ser
1325						1330					1335			
Ala	Gly	Gln	Glu	Glu	Ile	Leu	Ile	Tyr	Ile	Asn	Asp	His	Glu	Asp
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Glu Met Lys Arg Asn Val Ser Arg Gly Thr Lys Ala Leu Cys Tyr Ser
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Met Phe Ile Ser Asn Leu Thr Ser Pro Gln Thr Leu Tyr Phe Tyr Ser
 35 40 45

Ile Ile Asn Ser Arg Asp Val Leu Leu Ile Leu Glu Phe Val Glu Glu
 50 55 60

Gly Ser Asp Glu Ile Asn Gly Arg Thr Phe Glu Asn Pro Lys Ser Thr
 65 70 75 80

Lys Ile Thr Ala Pro Ala Thr Ser Val Gly Trp Phe Ser Thr His Ile
 85 90 95

Glu Lys Lys Thr Pro Val Glu Ile Ser Asn Thr Lys Ile Phe Asp Ile
 100 105 110

Phe Gly Gly Thr Pro Lys Leu Leu Ile Phe Asp Lys Glu Thr Val Leu
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Lys Pro Val Gly Asn Val Glu Cys Thr Tyr Asn Ile Phe Glu Met Pro
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Pro Ile Phe Phe Gln Cys Leu Pro Glu Phe Cys Ile Val Cys Asp Lys
 145 150 155 160

Asp Ile Ile Pro Gly Ile Ile Lys Asp Ser Ser Asp Glu Trp Trp Leu
 165 170 175

Ser Thr Pro Lys Glu Met Pro Thr Ile Pro Ala Ala Ile Asp Ala Ile
 180 185 190

Val Ile Gln Phe Lys Asn Asn Val Pro Glu Leu Glu Lys Gln Ile Thr
 195 200 205

His Asp Ile Glu Lys Glu Trp Ala Leu Lys Glu Gly Gly Thr Leu Lys
 210 215 220

Pro Lys Ala Ile Ile Met Asp Arg Lys Leu Arg Ile Gly Val His Asn
 225 230 235 240
 Gly Tyr Thr Tyr Val Thr Glu Pro Phe Thr Val Asp Leu Glu Ile Ile
 245 250 255
 Ser Ser Asn Ala Gly Asp Thr Leu Arg Ser Arg Lys Lys Pro Ile Asp
 260 265 270
 Phe Gly Lys Ser Ser Asn Trp Glu Glu Gln Leu Leu Phe Gln Ala Ala
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 Gly Asn Pro Arg Leu Ala Leu Arg Asn Leu Tyr Ala Asp Pro Arg Met
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 Ala Ile Ile Phe Leu Leu Glu Tyr Thr Phe His Arg Glu Asp Asn Gln
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 Ser Leu Asn Gln Thr Ile Leu Ile Gly Trp Ala Ala Trp Thr Pro Phe
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 Ser Asp Gly Ala Phe Ser Gly Lys Glu Val Glu Thr Arg Val Ser Phe
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 Val Gly Gly Pro Arg Pro Asn Pro Glu Gly Val Leu Cys Tyr Lys Asn
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 Val Leu Asn Gln Pro Asp Ser Leu Lys Pro Leu Asn Glu Lys Leu Glu
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 Ile Phe Val Asp Phe Lys Phe Tyr Glu Asn Gly Arg Ser Val His Asn
 385 390 395 400
 Thr Pro Thr Ser Arg Arg Ala Ala Asp Ser Ala Arg Val Gln Thr Gly
 405 410 415
 Arg Ser Gly Asp Asn Gly Gln Ser Ala Arg Ser Asn Arg Lys Ser Val
 420 425 430
 Lys Ile Glu Thr Pro Arg Ser Pro Glu Asn Ser Asn Arg Phe Pro Ala
 435 440 445
 Leu Val Asp Thr Gly Arg Ser Val Ser Ser Val Asp Glu Leu Arg Ser
 450 455 460
 Ile Asn Glu Asp Leu Asn Arg Phe Ile Glu Glu Pro Met Glu Ile Pro
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Val	Gln	Asp	Val	Val	Val	Ala	Lys	Lys	Pro	Val	Glu	Glu	Pro	Leu	Pro			
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Leu	Lys	Asp	Arg	Asn	Gly	Ser	Pro	Pro	Asn	Thr	Glu	Asp	Val	Thr	Leu			
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Ser	His	Val	Tyr	Phe	Gln	Phe	Ile	Ala	Phe	Lys	Gln	Leu	Ala	Ala	Pro			
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Asp	Ala	Arg	Met	Ile	Lys	Lys	Leu	Phe	Phe	Thr	Ile	Gly	Phe	Tyr	Arg			
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Phe	Pro	Asp	Ile	Thr	Thr	Glu	Ser	Met	Leu	Leu	Thr	Ser	Met	Glu	Lys			
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625					630					635					640			
Glu	Ser	Lys	Ala	Asp	Phe	Leu	Asp	Phe	Met	Ala	Ser	Gly	His	Ala	Thr			
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Ile	Asp	Val	Trp	Asp	Ser	Asp	Ser	Leu	Ile	His	Leu	Gly	Ser	Thr	Ile			
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Val	Pro	Ile	Lys	Asn	Leu	Tyr	Arg	Arg	Gly	Arg	Glu	Ala	Val	Gln	Leu			
		675					680					685						
Phe	Ile	Gln	Cys	Pro	Val	Val	Asp	Thr	Ser	Leu	Asp	Thr	Ser	Ser	Lys			
	690					695					700							
Ala	Gly	Ala	Phe	Leu	Tyr	Met	Arg	Val	Ala	Asn	Ile	Gly	Phe	Pro	Ser			
705					710					715					720			

Gly Asn Thr Tyr Asp Leu Ser Ser Ser Ser Ser Ser Leu Thr Thr Thr
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 Arg Ser Asn Val Asn Ser Gly Gln Gly Thr Val Val Arg Arg Leu Thr
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 Ser Ser Ile Arg Leu Asn Glu Glu Gly Pro His Ser Tyr Arg Ile His
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 Ala Lys Pro Leu Pro Gly Asn Ser Gly Val Gly Leu Asp Arg Phe Leu
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 Thr Ala Gln Arg Leu Asp Ile Gln Gln Arg His Glu Gln Leu Phe Asn
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 Glu Asn Ser Leu Asp Lys Ile Arg Gln Trp Asn Asp Leu Lys Glu Gly
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 Phe Asn Phe Ser Asp Asn Lys Glu Ile Ala Gln Lys Phe Ile Phe Glu
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 Glu Glu Leu Ala Ala Tyr Lys Lys Leu Arg Tyr Glu Ser Lys Pro Ala
 835 840 845
 Lys Leu Leu Glu Ala Val Phe Lys Gly Ile Thr Ser Cys His Gln Ile
 850 855 860
 Asn Pro Ser Phe Gly Glu Lys Val Phe Phe Glu Phe Pro Leu Glu Asn
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 Tyr Asn Ser Glu Pro Ile Asn Cys Thr Ile Glu Phe Asp Asp Glu Ala
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Lys	Thr	Phe	Leu	Leu	Leu	Met	Tyr	Ser	Asp	His	Tyr	Gln	Thr	Arg	
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Val	His	Arg	Arg	Ser	Glu	His	Asp	Gly	Val	Pro	Asp	Asp	Leu	Leu	
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His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
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Cys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
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Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
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Phe	His	Thr	Ser	Leu	Asn	His	Pro	His	Ile	Val	Ala	Val	Val	Glu	Val	100	105	110	
Val	Ala	Glu	Gly	Lys	Lys	Arg	Asp	Gly	Ser	Leu	Gln	Thr	Leu	Ser	Cys	115	120	125	
Gly	Phe	Gly	Ile	Leu	Arg	Ile	Phe	Ser	Asn	Gln	Pro	Asp	Ser	Pro	Ile	130	135	140	
Ser	Ala	Ser	Gln	Asp	Lys	Arg	Leu	Arg	Leu	Tyr	His	Gly	Thr	Pro	Arg	145	150	155	160
Ala	Leu	Leu	His	Pro	Leu	Leu	Gln	Asp	Pro	Ala	Glu	Gln	Asn	Arg	His	165	170	175	
Met	Thr	Leu	Ile	Glu	Asn	Cys	Ser	Leu	Gln	Tyr	Thr	Leu	Lys	Pro	His	180	185	190	
Pro	Ala	Leu	Glu	Pro	Ala	Phe	His	Leu	Leu	Pro	Glu	Asn	Leu	Leu	Val	195	200	205	
Ser	Gly	Leu	Gln	Gln	Ile	Pro	Gly	Leu	Leu	Pro	Ala	His	Gly	Glu	Ser	210	215	220	
Gly	Asp	Ala	Leu	Arg	Lys	Pro	Arg	Leu	Gln	Lys	Pro	Ile	Thr	Gly	His	225	230	235	240
Leu	Asp	Asp	Leu	Phe	Phe	Thr	Leu	Tyr	Pro	Ser	Leu	Glu	Lys	Phe	Glu	245	250	255	
Glu	Glu	Leu	Leu	Glu	Leu	His	Val	Gln	Asp	His	Phe	Gln	Glu	Gly	Cys	260	265	270	
Gly	Pro	Leu	Asp	Gly	Gly	Ala	Leu	Glu	Ile	Leu	Glu	Arg	Arg	Leu	Arg	275	280	285	
Val	Gly	Val	His	Asn	Gly	Leu	Gly	Phe	Val	Gln	Arg	Pro	Gln	Val	Val	290	295	300	
Val	Leu	Val	Pro	Glu	Met	Asp	Val	Ala	Leu	Thr	Arg	Ser	Ala	Ser	Phe	305	310	315	320

Ser Arg Lys Val Val Ser Ser Ser Lys Thr Ser Ser Gly Ser Gln Ala
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Leu Val Leu Arg Ser Arg Leu Arg Leu Pro Glu Met Val Gly His Pro
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Ala Phe Ala Val Ile Phe Gln Leu Glu Tyr Val Phe Ser Ser Pro Ala
 355 360 365

Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
 370 375 380

Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
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Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
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Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
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Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Phe Gln Phe Ser
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Leu Gly Ser Glu Glu His Leu Asp Ala Pro Thr Glu Pro Val Ser Gly
 450 455 460

Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
 465 470 475 480

Ser Pro Pro Ala Pro Val Pro Arg Val Leu Ala Ala Pro Gln Asn Ser
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Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
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Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
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Gly Ser Gln Ala Ser Pro Ala Gln Ala Gln Glu Phe Pro Leu Glu Ala
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Gly Ile Ser His Leu Glu Ala Asp Leu Ser Gln Thr Ser Leu Val Leu
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Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
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His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
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Pro Ser Arg Ala Ser Met Val Leu Leu Gln Ser Ser Gly Phe Pro Glu
 595 600 605

Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
 610 615 620

Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
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Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
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Cys Arg Gly Thr Ser Trp Pro Lys Thr Val Tyr Phe Thr Phe Gln Phe
 660 665 670

Tyr Arg Phe Pro Pro Ala Thr Thr Pro Arg Leu Gln Leu Val Gln Leu
 675 680 685

Asp Glu Ala Gly Gln Pro Ser Ser Gly Ala Leu Thr His Ile Leu Val
 690 695 700

Pro Val Ser Arg Asp Gly Thr Phe Asp Ala Gly Ser Pro Gly Phe Gln
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Leu Arg Tyr Met Val Gly Pro Gly Phe Leu Lys Pro Gly Glu Arg Arg
 725 730 735

Cys Phe Ala Arg Tyr Leu Ala Val Gln Thr Leu Gln Ile Asp Val Trp
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Asp Gly Asp Ser Leu Leu Leu Ile Gly Ser Ala Ala Val Gln Met Lys
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Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
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Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
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Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
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Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
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Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
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Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
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Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
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Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
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Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
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Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
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His Leu Leu Arg Gln Gly Arg Pro Ala Val Gln Ala Ser His Glu Leu
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Glu Val Val Ala Thr Glu Tyr Glu Gln Asp Asn Met Val Val Ser Gly
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acctgcgccc	ccacgagacc	gccacgtcc	ccttcaagtt	ccagagcttc	tctgcagggc	3480

agctggccat ggtgcaggcc tctcctgggt tgagcaacga gaagggcatg gacgccggtc 3540
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<211> 1121
<212> PRT
<213> Homo sapiens

<220>
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<222> (1121)..(1121)
<223> Xaa can be any naturally occurring amino acid

<400> 10

Met Asn Asp Trp His Arg Ile Phe Thr Gln Asn Val Leu Val Pro Pro
1 5 10 15

His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
20 25 30

Cys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
35 40 45

Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
50 55 60

Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
65 70 75 80

Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
85 90 95

Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
100 105 110

Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
115 120 125

Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
130 135 140

Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
145 150 155 160

Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
165 170 175

Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
 180 185 190

Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
 195 200 205

Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
 210 215 220

Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
 225 230 235 240

Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
 245 250 255

Glu Glu Leu Leu Glu Leu His Val Gln Asp His Phe Gln Glu Gly Cys
 260 265 270

Gly Pro Leu Asp Gly Gly Ala Leu Glu Ile Leu Glu Arg Arg Leu Arg
 275 280 285

Val Gly Val His Asn Gly Leu Gly Phe Val Gln Arg Pro Gln Val Val
 290 295 300

Val Leu Val Pro Glu Met Asp Val Ala Leu Thr Arg Ser Ala Ser Phe
 305 310 315 320

Ser Arg Lys Val Val Ser Ser Ser Lys Thr Ser Ser Gly Ser Gln Ala
 325 330 335

Leu Val Leu Arg Ser Arg Leu Arg Leu Pro Glu Met Val Gly His Pro
 340 345 350

Ala Phe Ala Val Ile Phe Gln Leu Glu Tyr Val Phe Ser Ser Pro Ala
 355 360 365

Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
 370 375 380

Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
 385 390 395 400

Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
 405 410 415

Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
 420 425 430
 Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Phe Gln Phe Ser
 435 440 445
 Leu Gly Ser Glu Glu His Leu Asp Ala Pro Thr Glu Pro Val Ser Gly
 450 455 460
 Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
 465 470 475 480
 Ser Pro Pro Ala Pro Val Pro Arg Val Leu Ala Ala Pro Gln Asn Ser
 485 490 495
 Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
 500 505 510
 Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
 515 520 525
 Gly Ser Gln Ala Ser Pro Ala Gln Ala Gln Glu Phe Pro Leu Glu Ala
 530 535 540
 Gly Ile Ser His Leu Glu Ala Asp Leu Ser Gln Thr Ser Leu Val Leu
 545 550 555 560
 Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
 565 570 575
 His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
 580 585 590
 Pro Ser Arg Ala Ser Met Val Leu Leu Gln Ser Ser Gly Phe Pro Glu
 595 600 605
 Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
 610 615 620
 Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
 625 630 635 640
 Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
 645 650 655
 Cys Arg Gly Thr Ser Trp Pro Lys Thr Val Tyr Phe Thr Phe Gln Phe
 660 665 670

Tyr Arg Phe Pro Pro Ala Thr Thr Pro Arg Leu Gln Leu Val Gln Leu
 675 680 685

Asp Glu Ala Gly Gln Pro Ser Ser Gly Ala Leu Thr His Ile Leu Val
 690 695 700

Pro Val Ser Arg Asp Gly Thr Phe Asp Ala Gly Ser Pro Gly Phe Gln
 705 710 715 720

Leu Arg Tyr Met Val Gly Pro Gly Phe Leu Lys Pro Gly Glu Arg Arg
 725 730 735

Cys Phe Ala Arg Tyr Leu Ala Val Gln Thr Leu Gln Ile Asp Val Trp
 740 745 750

Asp Gly Asp Ser Leu Leu Leu Ile Gly Ser Ala Ala Val Gln Met Lys
 755 760 765

His Leu Leu Arg Gln Gly Arg Pro Ala Val Gln Ala Ser His Glu Leu
 770 775 780

Glu Val Val Ala Thr Glu Tyr Glu Gln Asp Asn Met Val Val Ser Gly
 785 790 795 800

Asp Met Leu Gly Phe Gly Arg Val Lys Pro Ile Gly Val His Ser Val
 805 810 815

Val Lys Gly Arg Leu His Leu Thr Leu Ala Asn Val Gly His Pro Cys
 820 825 830

Glu Gln Lys Val Arg Gly Cys Ser Thr Leu Pro Pro Ser Arg Ser Arg
 835 840 845

Val Ile Ser Asn Asp Gly Ala Ser Arg Phe Ser Gly Gly Ser Leu Leu
 850 855 860

Thr Thr Gly Ser Ser Arg Arg Lys His Val Val Gln Ala Gln Lys Leu
 865 870 875 880

Ala Asp Val Asp Ser Glu Leu Ala Ala Met Leu Leu Thr His Ala Arg
 885 890 895

Gln Gly Lys Gly Pro Gln Asp Val Ser Arg Glu Ser Asp Ala Thr Arg
 900 905 910

Arg Arg Lys Leu Glu Arg Met Arg Ser Val Arg Leu Gln Glu Ala Gly
 915 920 925

Gly Asp Leu Gly Arg Arg Gly Thr Ser Val Leu Ala Gln Gln Ser Val
 930 935 940

Arg Thr Gln His Leu Arg Asp Leu Gln Val Ile Ala Ala Tyr Arg Glu
 945 950 955 960

Arg Thr Lys Ala Glu Ser Ile Ala Ser Leu Leu Ser Leu Ala Ile Thr
 965 970 975

Thr Glu His Thr Leu His Ala Thr Leu Gly Val Ala Glu Phe Phe Glu
 980 985 990

Phe Val Leu Lys Asn Pro His Asn Thr Gln His Thr Val Thr Val Glu
 995 1000 1005

Ile Asp Asn Pro Glu Leu Ser Val Ile Val Asp Ser Gln Glu Trp
 1010 1015 1020

Arg Asp Phe Lys Gly Ala Ala Gly Leu His Thr Pro Val Glu Glu
 1025 1030 1035

Asp Met Phe His Leu Arg Gly Ser Leu Ala Pro Gln Leu Tyr Leu
 1040 1045 1050

Arg Pro His Glu Thr Ala His Val Pro Phe Lys Phe Gln Ser Phe
 1055 1060 1065

Ser Ala Gly Gln Leu Ala Met Val Gln Ala Ser Pro Gly Leu Ser
 1070 1075 1080

Asn Glu Lys Gly Met Asp Ala Gly His Leu Gly Ser Pro Ala Gln
 1085 1090 1095

Cys Pro Leu Asn Thr Pro Arg Ser Cys Ser Glu Arg Val Val Ala
 1100 1105 1110

Ser Pro Ser Pro Cys Ser Ala Xaa
 1115 1120

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 <211> 1601
 <212> DNA
 <213> Homo sapiens

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 cgtgggctcc gtggcctccg gcgcggccgc ggcgggtcgg tctcctagat catccgggaa 240
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 cagaggttga atgccatctg cgagtgtctt tctttgatgt cacctaccgg cacttctttg 480
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<210> 12
 <211> 445
 <212> PRT
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (445)..(445)
 <223> Xaa can be any naturally occurring amino acid

<400> 12

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His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
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Cys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
 35 40 45

Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
 50 55 60

Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
 65 70 75 80

Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
 85 90 95

Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
 100 105 110

Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
 115 120 125

Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
 130 135 140

Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
 145 150 155 160

Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
 165 170 175

Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
 180 185 190

Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
 195 200 205

 Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
 210 215 220

 Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
 225 230 235 240

 Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
 245 250 255

 Glu Glu Leu Leu Glu Leu His Val Gln Asp His Phe Gln Glu Gly Cys
 260 265 270

 Gly Pro Leu Asp Gly Gly Ala Leu Glu Ile Leu Glu Arg Arg Leu Arg
 275 280 285

 Val Gly Val His Asn Gly Leu Gly Phe Val Gln Arg Pro Gln Val Val
 290 295 300

 Val Leu Val Pro Glu Met Asp Val Ala Leu Thr Arg Ser Ala Ser Phe
 305 310 315 320

 Ser Arg Lys Val Val Ser Ser Ser Lys Thr Ser Ser Gly Ser Gln Ala
 325 330 335

 Leu Val Leu Arg Ser Arg Leu Arg Leu Pro Glu Met Val Gly His Pro
 340 345 350

 Ala Phe Ala Val Ile Phe Gln Leu Glu Tyr Val Phe Ser Ser Pro Ala
 355 360 365

 Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
 370 375 380

 Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
 385 390 395 400

 Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
 405 410 415

 Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
 420 425 430

 Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Xaa
 435 440 445

<210> 13
 <211> 2240
 <212> DNA
 <213> Homo sapiens

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 aagaacacct ggatgcaccc acggagcctg tcagtggccc caaagtggag cggcggcctt 1680

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<210> 14
<211> 658
<212> PRT
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (658)..(658)
<223> Xaa can be any naturally occurring amino acid

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<400> 14

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Met Asn Asp Trp His Arg Ile Phe Thr Gln Asn Val Leu Val Pro Pro
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His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
20          25          30

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```

Gys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
35          40          45

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```

Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
50          55          60

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Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
65          70          75          80

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Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
85          90          95

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Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
100         105         110

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Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
 115 120 125

Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
 130 135 140

Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
 145 150 155 160

Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
 165 170 175

Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
 180 185 190

Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
 195 200 205

Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
 210 215 220

Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
 225 230 235 240

Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
 245 250 255

Glu Glu Leu Leu Glu Leu His Val Gln Asp His Phe Gln Glu Gly Cys
 260 265 270

Gly Pro Leu Asp Gly Gly Ala Leu Glu Ile Leu Glu Arg Arg Leu Arg
 275 280 285

Val Gly Val His Asn Gly Leu Gly Phe Val Gln Arg Pro Gln Val Val
 290 295 300

Val Leu Val Pro Glu Met Asp Val Ala Leu Thr Arg Ser Ala Ser Phe
 305 310 315 320

Ser Arg Lys Val Val Ser Ser Ser Lys Thr Ser Ser Gly Ser Gln Ala
 325 330 335

Leu Val Leu Arg Ser Arg Leu Arg Leu Pro Glu Met Val Gly His Pro
 340 345 350

Ala Phe Ala Val Ile Phe Gln Leu Glu Tyr Val Phe Ser Ser Pro Ala
 355 360 365

Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
 370 375 380
 Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
 385 390 395 400
 Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
 405 410 415
 Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
 420 425 430
 Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Phe Gln Phe Ser
 435 440 445
 Leu Gly Ser Glu Glu His Leu Asp Ala Pro Thr Glu Pro Val Ser Gly
 450 455 460
 Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
 465 470 475 480
 Ser Pro Pro Ala Pro Val Pro Arg Val Leu Ala Ala Pro Gln Asn Ser
 485 490 495
 Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
 500 505 510
 Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
 515 520 525
 Gly Ser Gln Ala Ser Pro Ala Gln Ala Gln Glu Phe Pro Leu Glu Ala
 530 535 540
 Gly Ile Ser His Leu Glu Ala Asp Leu Ser Gln Thr Ser Leu Val Leu
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 Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
 565 570 575
 His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
 580 585 590
 Pro Ser Arg Ala Ser Met Val Leu Leu Gln Ser Ser Gly Phe Pro Glu
 595 600 605

Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
610 615 620

Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
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Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
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Cys Xaa

<210> 15

<211> 2312

<212> DNA

<213> Homo sapiens

<400> 15

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His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
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Cys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
 35 40 45

Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
 50 55 60

Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
 65 70 75 80

Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
 85 90 95

Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
 100 105 110

Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
 115 120 125

Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
 130 135 140

Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
 145 150 155 160

Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
 165 170 175

Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
 180 185 190

Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
 195 200 205

Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
 210 215 220

Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
 225 230 235 240

Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
 245 250 255

Glu Glu Leu Leu Glu Leu His Val Gln Asp His Phe Gln Glu Gly Cys
 260 265 270

Gly Pro Leu Asp Gly Gly Ala Leu Glu Ile Leu Glu Arg Arg Leu Arg
 275 280 285

Val Gly Val His Asn Gly Leu Gly Phe Val Gln Arg Pro Gln Val Val
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Val Leu Val Pro Glu Met Asp Val Ala Leu Thr Arg Ser Ala Ser Phe
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Ser Arg Lys Val Val Ser Ser Ser Lys Thr Ser Ser Gly Ser Gln Ala
325 330 335
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Ala Phe Ala Val Ile Phe Gln Leu Glu Tyr Val Phe Ser Ser Pro Ala
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Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
370 375 380
Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
385 390 395 400
Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
405 410 415
Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
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Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Phe Gln Phe Ser
435 440 445
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450 455 460
Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
465 470 475 480
Ser Pro Pro Ala Pro Val Pro Arg Val Leu Ala Ala Pro Gln Asn Ser
485 490 495
Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
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Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
515 520 525
Gly Ser Gln Ala Ser Pro Ala Gln Ala Gln Glu Phe Pro Leu Glu Ala
530 535 540

Gly Ile Ser His Leu Glu Ala Asp Leu Ser Gln Thr Ser Leu Val Leu
545 550 555 560

Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
565 570 575

His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
580 585 590

Pro Ser Arg Ala Ser Met Val Leu Leu Gln Ser Ser Gly Phe Pro Glu
595 600 605

Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
610 615 620

Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
625 630 635 640

Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
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Cys Arg Gly Thr Ser Trp Pro Lys Thr Val Tyr Phe Thr Phe Gln Phe
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Tyr Arg Phe Pro Pro Ala Thr Thr Pro Xaa
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<400> 18

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His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
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Cys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
 35 40 45

Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
 50 55 60

Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
 65 70 75 80

Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
 85 90 95

Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
 100 105 110

Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
 115 120 125

Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
 130 135 140

Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
 145 150 155 160

Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
 165 170 175

Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
 180 185 190

Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
 195 200 205

Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
 210 215 220

Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
 225 230 235 240

Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
 245 250 255

Glu Glu Leu Leu Glu Leu His Val Gln Asp His Phe Gln Glu Gly Cys
 260 265 270

Gly Pro Leu Asp Gly Gly Ala Leu Glu Ile Leu Glu Arg Arg Leu Arg
 275 280 285

Val Gly Val His Asn Gly Leu Gly Phe Val Gln Arg Pro Gln Val Val
 290 295 300

Val Leu Val Pro Glu Met Asp Val Ala Leu Thr Arg Ser Ala Ser Phe
 305 310 315 320

Ser Arg Lys Val Val Ser Ser Ser Lys Thr Ser Ser Gly Ser Gln Ala
 325 330 335

Leu Val Leu Arg Ser Arg Leu Arg Leu Pro Glu Met Val Gly His Pro
 340 345 350

Ala Phe Ala Val Ile Phe Gln Leu Glu Tyr Val Phe Ser Ser Pro Ala
 355 360 365

Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
 370 375 380

Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
 385 390 395 400

Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
 405 410 415

Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
 420 425 430

Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Phe Gln Phe Ser
 435 440 445

Leu Gly Ser Glu Glu His Leu Asp Ala Pro Thr Glu Pro Val Ser Gly
 450 455 460

Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
 465 470 475 480

Ser Pro Pro Ala Pro Val Pro Arg Val Leu Ala Ala Pro Gln Asn Ser
 485 490 495

Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
 500 505 510

Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
 515 520 525

Gly Ser Gln Ala Ser Pro Ala Gln Ala Gln Glu Phe Pro Leu Glu Ala
 530 535 540

Gly Ile Ser His Leu Glu Ala Asp Leu Ser Gln Thr Ser Leu Val Leu
 545 550 555 560

Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
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His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
 580 585 590

Pro Ser Arg Ala Ser Met Val Leu Leu Gln Ser Ser Gly Phe Pro Glu
 595 600 605

Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
 610 615 620

Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
625 630 635 640

Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
645 650 655

Cys Arg Gly Thr Ser Trp Pro Lys Thr Val Tyr Phe Thr Phe Gln Phe
660 665 670

Tyr Arg Phe Pro Pro Ala Thr Thr Pro Arg Leu Gln Leu Val Gln Leu
675 680 685

Asp Glu Ala Gly Gln Pro Ser Ser Gly Ala Leu Thr His Ile Leu Val
690 695 700

Pro Val Ser Arg Asp Gly Thr Phe Asp Ala Gly Ser Pro Gly Phe Gln
705 710 715 720

Leu Arg Tyr Met Val Gly Pro Gly Phe Leu Lys Pro Gly Glu Arg Arg
725 730 735

Cys Phe Ala Arg Tyr Leu Ala Val Gln Thr Leu Gln Ile Asp Val Trp
740 745 750

Asp Gly Asp Ser Leu Leu Leu Ile Gly Ser Ala Ala Val Gln Met Lys
755 760 765

His Leu Leu Arg Gln Gly Arg Pro Ala Val Gln Ala Ser His Glu Leu
770 775 780

Glu Val Val Ala Thr Glu Tyr Glu Gln Asp Asn Met Val Val Ser Gly
785 790 795 800

Asp Met Leu Gly Phe Gly Arg Val Lys Pro Ile Gly Val His Ser Val
805 810 815

Val Lys Gly Arg Leu His Leu Thr Leu Ala Asn Val Gly His Pro Cys
820 825 830

Glu Gln Lys Val Arg Gly Cys Ser Thr Leu Pro Pro Ser Arg Ser Trp
835 840 845

Val Ile Ser Asn Asp Gly Ala Ser Arg Phe Ser Gly Gly Ser Leu Leu
850 855 860

Thr Thr Gly Ser Ser Arg Arg Lys His Val Val Gln Ala Gln Lys Leu
 865 870 875 880
 Ala Asp Val Asp Ser Glu Leu Ala Ala Met Leu Leu Thr His Ala Arg
 885 890 895
 Gln Gly Lys Gly Pro Gln Asp Val Ser Arg Glu Ser Asp Ala Thr Arg
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 Arg Arg Lys Leu Glu Arg Met Arg Ser Val Arg Leu Gln Glu Ala Gly
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 Gly Asp Leu Gly Arg Arg Gly Thr Ser Val Leu Ala Gln Gln Ser Val
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 Arg Thr Gln His Leu Arg Asp Leu Gln Val Ile Ala Ala Tyr Arg Glu
 945 950 955 960
 Arg Thr Lys Ala Glu Ser Ile Ala Ser Leu Leu Ser Leu Ala Ile Thr
 965 970 975
 Thr Glu His Thr Leu His Ala Thr Leu Gly Val Ala Glu Phe Phe Glu
 980 985 990
 Phe Val Leu Lys Asn Pro His Asn Thr Gln His Thr Val Thr Val Glu
 995 1000 1005
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 1010 1015 1020
 Arg Asp Phe Lys Gly Ala Ala Gly Leu His Thr Pro Val Glu Glu
 1025 1030 1035
 Asp Met Phe His Leu Arg Gly Ser Leu Ala Pro Gln Leu Tyr Leu
 1040 1045 1050
 Arg Pro His Glu Thr Ala His Val Pro Phe Lys Phe Gln Ser Phe
 1055 1060 1065
 Ser Ala Gly Gln Leu Ala Met Val Gln Ala Ser Pro Gly Leu Ser
 1070 1075 1080
 Asn Glu Lys Gly Met Asp Ala Val Ser Pro Trp Lys Ser Ser Ala
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 Val Pro Thr Lys His Ala Lys Val Leu Phe Arg Ala Ser Gly Gly
 1100 1105 1110

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Val	Val	Asp	Gln	Val	Phe	Arg	Phe	Tyr	His	Pro	Glu	Leu	Ser	Phe
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Leu	Lys	Lys	Ala	Ile	Arg	Leu	Pro	Pro	Trp	His	Thr	Phe	Pro	Gly
1145						1150					1155			
Ala	Pro	Val	Gly	Met	Leu	Gly	Glu	Asp	Pro	Pro	Val	His	Val	Arg
1160						1165					1170			
Cys	Ser	Asp	Pro	Asn	Val	Ile	Cys	Glu	Thr	Gln	Asn	Val	Gly	Pro
1175						1180					1185			
Gly	Glu	Pro	Arg	Asp	Ile	Phe	Leu	Lys	Val	Ala	Ser	Gly	Pro	Ser
1190						1195					1200			
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Gln	Arg	Val	Asp	Val	Ser	Cys	Val	Ala	Gly	Gln	Leu	Thr	Arg	Leu
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1250						1255					1260			
Phe	Thr	Ser	His	Pro	Gln	Glu	Leu	Lys	Thr	Asp	Pro	Lys	Gly	Val
1265						1270					1275			
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1295						1300					1305			
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Asn Pro Tyr Pro Ser Arg Arg Thr Phe His Leu His Ser Asp His
1355 1360 1365

Pro Glu Leu Leu Arg Phe Arg Glu Asp Ser Phe Gln Val Gly Gly
1370 1375 1380

Gly Glu Thr Tyr Thr Ile Gly Leu Gln Phe Ala Pro Ser Gln Arg
1385 1390 1395

Val Gly Glu Glu Glu Ile Leu Ile Tyr Ile Asn Asp His Glu Asp
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 <211> 790
 <212> PRT
 <213> Homo sapiens

<220>
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 <222> (790)..(790)
 <223> Xaa can be any naturally occurring amino acid
 <400> 20

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His Pro Gln Arg Ala Arg Gln Pro Trp Lys Glu Ser Thr Ala Phe Gln
 20 25 30

Cys Val Leu Lys Trp Leu Asp Gly Pro Val Ile Arg Gln Gly Val Leu
 35 40 45

Glu Val Leu Ser Glu Val Glu Cys His Leu Arg Val Ser Phe Phe Asp
 50 55 60

Val Thr Tyr Arg His Phe Phe Gly Arg Thr Trp Lys Thr Thr Val Lys
 65 70 75 80

Pro Thr Lys Arg Pro Pro Ser Arg Ile Val Phe Asn Glu Pro Leu Tyr
 85 90 95

Phe His Thr Ser Leu Asn His Pro His Ile Val Ala Val Val Glu Val
 100 105 110

Val Ala Glu Gly Lys Lys Arg Asp Gly Ser Leu Gln Thr Leu Ser Cys
 115 120 125

Gly Phe Gly Ile Leu Arg Ile Phe Ser Asn Gln Pro Asp Ser Pro Ile
 130 135 140

Ser Ala Ser Gln Asp Lys Arg Leu Arg Leu Tyr His Gly Thr Pro Arg
 145 150 155 160

Ala Leu Leu His Pro Leu Leu Gln Asp Pro Ala Glu Gln Asn Arg His
 165 170 175

Met Thr Leu Ile Glu Asn Cys Ser Leu Gln Tyr Thr Leu Lys Pro His
 180 185 190

Pro Ala Leu Glu Pro Ala Phe His Leu Leu Pro Glu Asn Leu Leu Val
 195 200 205
 Ser Gly Leu Gln Gln Ile Pro Gly Leu Leu Pro Ala His Gly Glu Ser
 210 215 220
 Gly Asp Ala Leu Arg Lys Pro Arg Leu Gln Lys Pro Ile Thr Gly His
 225 230 235 240
 Leu Asp Asp Leu Phe Phe Thr Leu Tyr Pro Ser Leu Glu Lys Phe Glu
 245 250 255
 Glu Glu Leu Leu Glu Leu His Val Gln Asp His Phe Gln Glu Gly Cys
 260 265 270
 Gly Pro Leu Asp Gly Gly Ala Leu Glu Ile Leu Glu Arg Arg Leu Arg
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 Val Gly Val His Asn Gly Leu Gly Phe Val Gln Arg Pro Gln Val Val
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 Val Leu Val Pro Glu Met Asp Val Ala Leu Thr Arg Ser Ala Ser Phe
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 Gly Val Asp Gly Asn Ala Ala Ser Val Thr Ser Leu Ser Asn Leu Ala
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 Cys Met His Met Val Arg Trp Ala Val Trp Asn Pro Leu Leu Glu Ala
 385 390 395 400
 Asp Ser Gly Arg Val Thr Leu Pro Leu Gln Gly Gly Ile Gln Pro Asn
 405 410 415
 Pro Ser His Cys Leu Val Tyr Lys Val Pro Ser Ala Ser Met Ser Ser
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 Glu Glu Val Lys Gln Val Glu Ser Gly Thr Leu Arg Phe Gln Phe Ser
 435 440 445

Leu Gly Ser Glu Glu His Leu Asp Ala Pro Thr Glu Pro Val Ser Gly
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 Pro Lys Val Glu Arg Arg Pro Ser Arg Lys Pro Pro Thr Ser Pro Ser
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 Ser Pro Pro Ala Pro Val Pro Arg Val Leu Ala Ala Pro Gln Asn Ser
 485 490 495
 Pro Val Gly Pro Gly Leu Ser Ile Ser Gln Leu Ala Ala Ser Pro Arg
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 Ser Pro Thr Gln His Cys Leu Ala Arg Pro Thr Ser Gln Leu Pro His
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 Gly Ile Ser His Leu Glu Ala Asp Leu Ser Gln Thr Ser Leu Val Leu
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 Glu Thr Ser Ile Ala Glu Gln Leu Gln Glu Leu Pro Phe Thr Pro Leu
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 His Ala Pro Ile Val Val Gly Thr Gln Thr Arg Ser Ser Ala Gly Gln
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 Ile Leu Asp Ala Asn Lys Gln Pro Ala Glu Ala Val Ser Ala Thr Glu
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 Pro Val Thr Phe Asn Pro Gln Lys Glu Glu Ser Asp Cys Leu Gln Ser
 625 630 635 640
 Asn Glu Met Val Leu Gln Phe Leu Ala Phe Ser Arg Val Ala Gln Asp
 645 650 655
 Cys Arg Gly Thr Ser Trp Pro Lys Thr Val Tyr Phe Thr Phe Gln Phe
 660 665 670
 Tyr Arg Phe Pro Pro Ala Thr Thr Pro Arg Leu Gln Leu Val Gln Leu
 675 680 685

Asp Glu Ala Gly Gln Pro Ser Ser Gly Ala Leu Thr His Ile Leu Val
 690 695 700

Pro Val Ser Arg Asp Gly Thr Phe Asp Ala Gly Ser Pro Gly Phe Gln
 705 710 715 720

Leu Arg Tyr Met Val Gly Pro Gly Phe Leu Lys Pro Gly Glu Arg Arg
 725 730 735

Cys Phe Ala Arg Tyr Leu Ala Val Gln Thr Leu Gln Ile Asp Val Trp
 740 745 750

Asp Gly Asp Ser Leu Leu Leu Ile Gly Ser Ala Ala Val Gln Met Lys
 755 760 765

His Leu Leu Arg Gln Gly Arg Pro Ala Val Gln Ala Ser His Glu Leu
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Glu Val Val Ala Thr Xaa
 785 790

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 <211> 3558
 <212> DNA
 <213> Homo sapiens

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 ggctcatcgt agggaaactct gctcttaaag acaaagaaga tcagtttggg agaaccac 180
 ttatgtattg cgtggtggct gacagattgg attgtgcaga tgctcttctg aaggcaggag 240
 cagatgtgaa taaaactgac catagccaga gaacagccct ccatcttgca gccagaagg 300
 gaaattatcg tttcatgaaa ctcttactta cacgcagagc aaactggatg caaaaggatc 360
 tggaagagat gactcctttg cacttgacca cccggcacag gagccctaag tgtttggcac 420
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 <212> PRT
 <213> Homo sapiens

<400> 22

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Gln Val His Ala Ala Ala Val Asn Gly Asp Lys Gly Ala Leu Gln Arg
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Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
 35 40 45

Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
 50 55 60

Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
100 105 110
Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
115 120 125
Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
130 135 140
Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
145 150 155 160
Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
165 170 175
Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
180 185 190
Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
195 200 205
Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
210 215 220
Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
225 230 235 240
Thr Ser Tyr Glu Ser Cys Asn Ile Thr Ser Tyr Asp Asn Leu Phe Arg
245 250 255
Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
260 265 270
Leu Leu Leu Glu Arg Asn Lys Ser Gly Thr Ile Pro Ser Asp Ser Gln
275 280 285
Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
290 295 300
Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
305 310 315 320
Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
325 330 335
Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
340 345 350

Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
 355 360 365

His Val Ser Thr Val Lys Leu Leu Leu Glu Asn Asn Ala Gln Val Asp
 370 375 380

Ala Thr Asp Val Met Lys His Thr Pro Leu Phe Arg Ala Cys Glu Met
 385 390 395 400

Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
 405 410 415

Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
 420 425 430

Gly Gly Asn Ala Asp Val Cys Gln Ile Leu Ile Glu Asn Lys Ile Asn
 435 440 445

Pro Asn Val Gln Asp Tyr Ala Gly Arg Thr Pro Leu Gln Cys Ala Ala
 450 455 460

Tyr Gly Gly Tyr Ile Asn Cys Met Ala Val Leu Met Glu Asn Asn Ala
 465 470 475 480

Asp Pro Asn Ile Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp Ser
 485 490 495

Cys Asn Asn Gly Tyr Leu Asp Ala Ile Lys Leu Leu Leu Asp Phe Ala
 500 505 510

Ala Phe Pro Asn Gln Met Glu Asn Asn Glu Glu Arg Tyr Thr Pro Leu
 515 520 525

Asp Tyr Ala Leu Leu Gly Glu Arg His Glu Val Ile Gln Phe Met Leu
 530 535 540

Glu His Gly Ala Leu Ser Ile Ala Ala Ile Gln Asp Ile Ala Ala Phe
 545 550 555 560

Lys Ile Gln Ala Val Tyr Lys Gly Tyr Lys Val Arg Lys Ala Phe Arg
 565 570 575

Asp Arg Lys Asn Leu Leu Met Lys His Glu Gln Leu Arg Lys Asp Ala
 580 585 590

Ala Ala Lys Lys Arg Glu Glu Glu Asn Lys Arg Lys Glu Ala Glu Gln
 595 600 605
 Gln Lys Gly Arg Arg Ser Pro Asp Ser Cys Arg Pro Gln Ala Leu Pro
 610 615 620
 Cys Leu Pro Ser Thr Gln Asp Val Pro Ser Arg Gln Ser Arg Ala Pro
 625 630 635 640
 Ser Lys Gln Pro Pro Ala Gly Asn Val Ala Gln Gly Pro Glu Pro Arg
 645 650 655
 Asp Ser Arg Gly Ser Pro Gly Gly Ser Leu Gly Gly Ala Leu Gln Lys
 660 665 670
 Glu Gln His Val Ser Ser Asp Leu Gln Gly Thr Asn Ser Arg Arg Pro
 675 680 685
 Asn Glu Thr Ala Arg Glu His Ser Lys Gly Gln Ser Ala Cys Val His
 690 695 700
 Phe Arg Pro Asn Glu Gly Ser Asp Gly Ser Arg His Pro Gly Val Pro
 705 710 715 720
 Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
 725 730 735
 Lys Gly Lys Gly Phe Val Lys Gln Pro Ser Cys Ile Arg Val Ala Gly
 740 745 750
 Pro Asp Glu Lys Gly Glu Asp Ser Arg Arg Ala Gly Ala Ser Leu Pro
 755 760 765
 Pro His Asp Ser His Trp Lys Pro Ser Arg Arg His Asp Thr Glu Pro
 770 775 780
 Lys Ala Lys Cys Ala Pro Gln Lys Arg Arg Thr Gln Glu Leu Arg Gly
 785 790 795 800
 Gly Arg Cys Ser Pro Ala Gly Ser Ser Arg Pro Gly Ser Ala Arg Gly
 805 810 815
 Glu Ala Val His Ala Gly Gln Asn Pro Pro His His Arg Thr Pro Arg
 820 825 830
 Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
 835 840 845

Pro Gln Ser Thr Glu Glu Leu Arg Ser Gly Ala Arg Arg Leu Glu Thr
 850 855 860
 Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
 865 870 875 880
 Pro Gly Pro Leu Ser Gly Gln Ser Val Asn Ile Asp Leu Leu Pro Val
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 Glu Leu Arg Leu Gln Ile Ile Gln Arg Glu Arg Arg Arg Lys Glu Leu
 900 905 910
 Phe Arg Lys Lys Asn Lys Ala Ala Ala Val Ile Gln Arg Ala Trp Arg
 915 920 925
 Ser Tyr Gln Leu Arg Lys His Leu Ser His Leu Arg His Met Lys Gln
 930 935 940
 Leu Gly Ala Gly Asp Val Asp Arg Trp Arg Gln Glu Ser Thr Ala Leu
 945 950 955 960
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 965 970 975
 Thr Ala Val Ser Lys Ala Pro Lys Ser Pro Ser Lys Gly Thr Ser Gly
 980 985 990
 Thr Lys Ser Thr Lys His Ser Val Leu Lys Gln Ile Tyr Gly Cys Ser
 995 1000 1005
 His Glu Gly Lys Ile His His Pro Thr Arg Ser Val Lys Ala Ser
 1010 1015 1020
 Ser Val Leu Arg Leu Asn Ser Val Ser Asn Leu Gln Cys Ile His
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 <211> 3558
 <212> DNA
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Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
 35 40 45

Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
 50 55 60

Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
 100 105 110

Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160

Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175

Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
 180 185 190

Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
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 Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
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 Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
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 Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
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 Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
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 Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
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 Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
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 Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
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 Asp Pro Asn Ile Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp Ser
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 Glu His Gly Ala Leu Ser Ile Ala Ala Ile Gln Asp Ile Ala Ala Phe
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 Cys Leu Pro Ser Thr Gln Asp Val Pro Ser Arg Gln Ser Arg Ala Pro
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Asn Glu Thr Ala Arg Glu His Ser Lys Gly Gln Ser Ala Cys Val His
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Phe Arg Pro Asn Glu Gly Ser Asp Gly Ser Arg His Pro Gly Val Pro
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Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
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Lys Gly Lys Gly Phe Val Lys Gln Pro Ser Cys Ile Arg Val Ala Gly
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Pro Asp Glu Lys Gly Glu Asp Ser Arg Arg Ala Gly Ala Ser Leu Pro
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Pro His Asp Ser His Trp Lys Pro Ser Arg Arg His Asp Thr Glu Pro
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Lys Ala Lys Cys Ala Pro Gln Lys Arg Arg Thr Gln Glu Leu Arg Gly
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Gly Arg Cys Ser Pro Ala Gly Ser Ser Arg Pro Gly Ser Ala Arg Gly
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Glu Ala Val His Ala Gly Gln Asn Pro Pro His His Arg Thr Pro Arg
 820 825 830

Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
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Pro Gln Ser Thr Glu Glu Leu Arg Ser Gly Ala Arg Arg Leu Glu Thr
 850 855 860

Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
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Pro Gly Pro Leu Ser Gly Gln Ser Val Asn Ile Asp Leu Leu Pro Val
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Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
 35 40 45

Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
 50 55 60

Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
 100 105 110

Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160

Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175

Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
 180 185 190

Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
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 Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
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 Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
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 Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
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 Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
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 Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
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 Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
 325 330 335
 Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
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 Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
 355 360 365
 His Val Ser Thr Val Lys Leu Leu Leu Glu Asn Asn Ala Gln Val Asp
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 Ala Thr Asp Val Met Lys His Thr Pro Leu Phe Arg Ala Cys Glu Met
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 Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
 405 410 415
 Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
 420 425 430
 Gly Gly Asn Ala Asp Val Cys Gln Ile Leu Ile Glu Asn Lys Ile Asn
 435 440 445

Pro Asn Val Gln Asp Tyr Ala Gly Arg Thr Pro Leu Gln Cys Ala Ala
 450 455 460

Tyr Gly Gly Tyr Ile Asn Cys Met Ala Val Leu Met Glu Asn Asn Ala
 465 470 475 480

Asp Pro Asn Ile Lys Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp
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Ser Cys Asn Asn Gly Tyr Leu Asp Ala Ile Lys Leu Leu Leu
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<210> 28
 <211> 602
 <212> PRT
 <213> Homo sapiens

<400> 28

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Gln Val His Ala Ala Ala Val Asn Gly Asp Lys Gly Ala Leu Gln Arg
 20 25 30

Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
 35 40 45

Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
 50 55 60

Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
 100 105 110

Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln	Asp	Lys	Asn	Lys	Gln	Thr	Ala	Leu	His	Trp	Ser	Ala	Tyr	Tyr	Asn	145	150	155	160
Asn	Pro	Glu	His	Val	Lys	Leu	Leu	Ile	Lys	His	Asp	Ser	Asn	Ile	Gly	165	170		175
Ile	Pro	Asp	Val	Glu	Gly	Lys	Ile	Pro	Leu	His	Trp	Ala	Ala	Asn	His	180	185	190	
Lys	Asp	Pro	Ser	Ala	Val	His	Thr	Val	Arg	Cys	Ile	Leu	Asp	Ala	Ala	195	200	205	
Pro	Thr	Glu	Ser	Leu	Leu	Asn	Trp	Gln	Asp	Tyr	Glu	Gly	Arg	Thr	Pro	210	215	220	
Leu	His	Phe	Ala	Val	Ala	Asp	Gly	Asn	Val	Thr	Val	Val	Asp	Val	Leu	225	230	235	240
Thr	Ser	Tyr	Glu	Ser	Cys	Asn	Ile	Thr	Ser	Tyr	Asp	Asn	Leu	Phe	Arg	245	250	255	
Thr	Pro	Leu	His	Trp	Ala	Ala	Leu	Leu	Gly	His	Ala	Gln	Ile	Val	His	260	265	270	
Leu	Leu	Leu	Glu	Arg	Asn	Lys	Ser	Gly	Thr	Ile	Pro	Ser	Asp	Ser	Gln	275	280	285	
Gly	Ala	Thr	Pro	Leu	His	Tyr	Ala	Ala	Gln	Ser	Asn	Phe	Ala	Glu	Thr	290	295	300	
Val	Lys	Val	Phe	Leu	Lys	His	Pro	Ser	Val	Lys	Asp	Asp	Ser	Asp	Leu	305	310	315	320
Glu	Gly	Arg	Thr	Ser	Phe	Met	Trp	Ala	Ala	Gly	Lys	Gly	Ser	Asp	Asp	325	330	335	
Val	Leu	Arg	Thr	Met	Leu	Ser	Leu	Lys	Ser	Asp	Ile	Asp	Ile	Asn	Met	340	345	350	
Ala	Asp	Lys	Tyr	Gly	Gly	Thr	Ala	Leu	His	Ala	Ala	Ala	Leu	Ser	Gly	355	360	365	
His	Val	Ser	Thr	Val	Lys	Leu	Leu	Leu	Glu	Asn	Asn	Ala	Gln	Val	Asp	370	375	380	
Ala	Thr	Asp	Val	Met	Lys	His	Thr	Pro	Leu	Phe	Arg	Ala	Cys	Glu	Met	385	390	395	400

Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
 405 410 415

Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
 420 425 430

Gly Gly Asn Ala Asp Val Cys Gln Ile Leu Ile Glu Asn Lys Ile Asn
 435 440 445

Pro Asn Val Gln Asp Tyr Ala Gly Arg Thr Pro Leu Gln Cys Ala Ala
 450 455 460

Tyr Gly Gly Tyr Ile Asn Cys Met Ala Val Leu Met Glu Asn Asn Ala
 465 470 475 480

Asp Pro Asn Ile Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp Ser
 485 490 495

Cys Asn Asn Gly Tyr Leu Asp Ala Ile Lys Leu Leu Leu Asp Phe Ala
 500 505 510

Ala Phe Pro Asn Gln Met Glu Asn Asn Glu Glu Arg Tyr Thr Pro Leu
 515 520 525

Asp Tyr Ala Leu Leu Gly Glu Arg His Glu Val Ile Gln Phe Met Leu
 530 535 540

Glu His Gly Ala Leu Ser Ile Ala Ala Ile Gln Asp Ile Ala Ala Phe
 545 550 555 560

Lys Ile Gln Ala Val Tyr Lys Gly Tyr Lys Val Arg Lys Ala Phe Arg
 565 570 575

Asp Arg Lys Asn Leu Leu Met Lys His Glu Gln Leu Arg Lys Asp Ala
 580 585 590

Ala Ala Lys Lys Arg Glu Glu Glu Asn Lys
 595 600

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 <211> 3558
 <212> DNA
 <213> Homo sapiens

<400> 29
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<210> 30
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 <212> PRT
 <213> Homo sapiens
 <400> 30

Met Asn Lys Ser Glu Asn Leu Leu Phe Ala Gly Ser Ser Leu Ala Ser
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Gln Val His Ala Ala Ala Val Asn Gly Asp Lys Gly Ala Leu Gln Arg
 20 25 30

Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
 35 40 45

Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
 50 55 60

Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
 100 105 110

Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160

Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175

Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
 180 185 190

Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
195 200 205

Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
210 215 220

Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
225 230 235 240

Thr Ser Tyr Glu Ser Cys Asn Ile Thr Ser Tyr Asp Asn Leu Phe Arg
245 250 255

Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
260 265 270

Leu Leu Leu Glu Arg Asn Lys Ser Gly Thr Ile Pro Ser Asp Ser Gln
275 280 285

Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
290 295 300

Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
305 310 315 320

Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
325 330 335

Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
340 345 350

Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
355 360 365

His Val Ser Thr Val Lys Leu Leu Leu Glu Asn Asn Ala Gln Val Asp
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Ala Thr Asp Val Met Lys His Thr Pro Leu Phe
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<210> 31
<211> 3558
<212> DNA
<213> Homo sapiens

<400> 31

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 <211> 1065
 <212> PRT
 <213> Homo sapiens

<400> 32

Met Asn Lys Ser Glu Asn Leu Leu Phe Ala Gly Ser Ser Leu Ala Ser
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Gln Val His Ala Ala Ala Val Asn Gly Asp Lys Gly Ala Leu Gln Arg
 20 25 30

Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
 35 40 45

Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
 50 55 60

Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
 100 105 110

Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160

Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175

Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
 180 185 190

Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
 195 200 205

Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
 210 215 220

Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
 225 230 235 240
 Thr Ser Tyr Glu Ser Cys Asn Ile Thr Ser Tyr Asp Asn Leu Phe Arg
 245 250 255
 Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
 260 265 270
 Leu Leu Leu Glu Arg Asn Lys Ser Gly Thr Ile Pro Ser Asp Ser Gln
 275 280 285
 Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
 290 295 300
 Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
 305 310 315 320
 Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
 325 330 335
 Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
 340 345 350
 Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
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 His Val Ser Thr Val Lys Leu Leu Leu Glu Asn Asn Ala Gln Val Asp
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 385 390 395 400
 Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
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 Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
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 Gly Gly Asn Ala Asp Val Cys Gln Ile Leu Ile Glu Asn Lys Ile Asn
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 Pro Asn Val Gln Asp Tyr Ala Gly Arg Thr Pro Leu Gln Cys Ala Ala
 450 455 460
 Tyr Gly Gly Tyr Ile Asn Cys Met Ala Val Leu Met Glu Asn Asn Ala
 465 470 475 480

Asp Arg Asn Ile Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp Ser
 485 490 495
 Cys Asn Asn Gly Tyr Leu Asp Ala Ile Lys Leu Leu Leu Asp Phe Ala
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 Ala Phe Pro Asn Gln Met Glu Asn Asn Glu Glu Arg Tyr Thr Pro Leu
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 Asp Tyr Ala Leu Leu Gly Glu Arg His Glu Val Ile Gln Phe Met Leu
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 Glu His Gly Ala Leu Ser Ile Ala Ala Ile Gln Asp Ile Ala Ala Phe
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 Lys Ile Gln Ala Val Tyr Lys Gly Tyr Lys Val Arg Lys Ala Phe Arg
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 Ala Ala Lys Lys Arg Glu Glu Glu Asn Lys Arg Lys Glu Ala Glu Gln
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 Gln Lys Gly Arg Arg Ser Pro Asp Ser Cys Arg Pro Gln Ala Leu Pro
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 Cys Leu Pro Ser Thr Gln Asp Val Pro Ser Arg Gln Ser Arg Ala Pro
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 Ser Lys Gln Pro Pro Ala Gly Asn Val Ala Gln Gly Pro Glu Pro Arg
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 Asp Ser Arg Gly Ser Pro Gly Gly Ser Leu Gly Gly Ala Leu Gln Lys
 660 665 670
 Glu Gln His Val Ser Ser Asp Leu Gln Gly Thr Asn Ser Arg Arg Pro
 675 680 685
 Asn Glu Thr Ala Arg Glu His Ser Lys Gly Gln Ser Ala Cys Val His
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 Phe Arg Pro Asn Glu Gly Ser Asp Gly Ser Arg His Pro Gly Val Pro
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Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
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Lys Gly Lys Gly Phe Val Lys Gln Pro Ser Cys Ile Arg Val Ala Gly
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Pro Asp Glu Lys Gly Glu Asp Ser Arg Arg Ala Gly Ala Ser Leu Pro
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Pro His Asp Ser His Trp Lys Pro Ser Arg Arg His Asp Thr Glu Pro
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Lys Ala Lys Cys Ala Pro Gln Lys Arg Arg Thr Gln Glu Leu Arg Gly
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Gly Arg Cys Ser Pro Ala Gly Ser Ser Arg Pro Gly Ser Ala Arg Gly
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Glu Ala Val His Ala Gly Gln Asn Pro Pro His His Arg Thr Pro Arg
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Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
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Pro Gln Ser Thr Glu Glu Leu Arg Ser Gly Ala Arg Arg Leu Glu Thr
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Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
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Pro Gly Pro Leu Ser Gly Gln Ser Val Asn Ile Asp Leu Leu Pro Val
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Glu Leu Arg Leu Gln Ile Ile Gln Arg Glu Arg Arg Arg Lys Glu Leu
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Phe Arg Lys Lys Asn Lys Ala Ala Ala Val Ile Gln Arg Ala Trp Arg
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Ser Tyr Gln Leu Arg Lys His Leu Ser His Leu Arg His Met Lys Gln
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Leu Gly Ala Gly Asp Val Asp Arg Trp Arg Gln Glu Ser Thr Ala Leu
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Thr Ala Val Ser Lys Ala Pro Lys Ser Pro Ser Lys Gly Thr Ser Gly
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 Thr Lys Ser Thr Lys His Ser Val Leu Lys Gln Ile Tyr Gly Cys Ser
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 His Glu Gly Lys Ile His His Pro Thr Arg Ser Val Lys Ala Ser
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 Ser Val Leu Arg Leu Asn Ser Val Ser Asn Leu Gln Cys Ile His
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 ggaatgtgac cgtgggttgat gtcttgacct catatgaaag ctgcaatata acgtcttatg 780
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 ctttgacta tgctgctcag agtaactttg ctgaaacggt taaagtgttt ttaaaacatc 960

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 Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140
 Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160
 Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175
 Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
 180 185 190
 Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
 195 200 205
 Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
 210 215 220
 Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
 225 230 235 240
 Thr Ser Tyr Glu Ser Cys Asn Ile Thr Ser Tyr Asp Asn Leu Phe Arg
 245 250 255
 Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
 260 265 270
 Leu Leu Leu Glu Arg Asn Lys Ser Gly Thr Ile Pro Ser Asp Ser Gln
 275 280 285
 Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
 290 295 300
 Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
 305 310 315 320
 Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
 325 330 335
 Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
 340 345 350
 Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
 355 360 365

His	Val	Ser	Thr	Val	Lys	Leu	Leu	Leu	Glu	Asn	Asn	Ala	Gln	Val	Asp	370	375	380	
Ala	Thr	Asp	Val	Met	Lys	His	Thr	Pro	Leu	Phe	Arg	Ala	Cys	Glu	Met	385	390	395	400
Gly	His	Lys	Asp	Val	Ile	Gln	Thr	Leu	Ile	Lys	Gly	Gly	Ala	Arg	Val	405	410	415	
Asp	Leu	Val	Asp	Gln	Asp	Gly	His	Ser	Leu	Leu	His	Trp	Ala	Ala	Leu	420	425	430	
Gly	Gly	Asn	Ala	Asp	Val	Cys	Gln	Ile	Leu	Ile	Glu	Asn	Lys	Ile	Asn	435	440	445	
Pro	Asn	Val	Gln	Asp	Tyr	Ala	Gly	Arg	Thr	Pro	Leu	Gln	Cys	Ala	Ala	450	455	460	
Tyr	Gly	Gly	Tyr	Ile	Asn	Cys	Met	Ala	Val	Leu	Met	Glu	Asn	Asn	Ala	465	470	475	480
Asp	Pro	Asn	Ile	Gln	Asp	Lys	Glu	Gly	Arg	Thr	Ala	Leu	His	Trp	Ser	485	490	495	
Cys	Asn	Asn	Gly	Tyr	Leu	Asp	Ala	Ile	Lys	Leu	Leu	Leu	Asp	Phe	Ala	500	505	510	
Ala	Phe	Pro	Asn	Gln	Met	Glu	Asn	Asn	Glu	Glu	Arg	Tyr	Thr	Pro	Leu	515	520	525	
Asp	Tyr	Ala	Leu	Leu	Gly	Glu	Arg	His	Glu	Val	Ile	Gln	Phe	Met	Leu	530	535	540	
Glu	His	Gly	Ala	Leu	Ser	Ile	Ala	Ala	Ile	Gln	Asp	Ile	Ala	Ala	Phe	545	550	555	560
Lys	Ile	Gln	Ala	Val	Tyr	Lys	Gly	Tyr	Lys	Val	Arg	Lys	Ala	Phe	Arg	565	570	575	
Asp	Arg	Lys	Asn	Leu	Leu	Met	Lys	His	Glu	Gln	Leu	Arg	Lys	Asp	Ala	580	585	590	
Ala	Ala	Lys	Lys	Arg	Glu	Glu	Glu	Asn	Lys	Arg	Lys	Glu	Ala	Glu	Gln	595	600	605	

Gln Lys Gly Arg Arg Ser Pro Asp Ser Cys Arg Pro Gln Ala Leu Pro
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Cys Leu Pro Ser Thr Gln Asp Val Pro Ser Arg Gln Ser Arg Ala Pro
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Ser Lys Gln Pro Pro Ala Gly Asn Val Ala Gln Gly Pro Glu Pro Arg
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Asp Ser Arg Gly Ser Pro Gly Gly Ser Leu Gly Gly Ala Leu Gln Lys
 660 665 670

Glu Gln His Val Ser Ser Asp Leu Gln Gly Thr Asn Ser Arg Arg Pro
 675 680 685

Asn Glu Thr Ala Arg Glu His Ser Lys Gly Gln Ser Ala Cys Val His
 690 695 700

Phe Arg Pro Asn Glu Gly Ser Asp Gly Ser Arg His Pro Gly Val Pro
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Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
 725 730 735

Lys Gly Lys Gly Phe Val Lys Gln Pro Ser Cys Ile Arg Val Ala Gly
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Pro Asp Glu Lys Gly Glu Asp Ser Arg Arg Ala Gly Ala Ser Leu Pro
 755 760 765

Pro His Asp Ser His Trp Lys Pro Ser Arg Arg His Asp Thr Glu Pro
 770 775 780

Lys Ala Lys Cys Ala Pro Gln Lys Arg Arg Thr Gln Glu Leu Arg Gly
 785 790 795 800

Gly Arg Cys Ser Pro Ala Gly Ser Ser Arg Pro Gly Ser Ala Arg Gly
 805 810 815

Glu Ala Val His Ala Gly Gln Asn Pro Pro His His Arg Thr Pro Arg
 820 825 830

Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
 835 840 845

Pro Gln Ser Thr Glu Glu Leu Arg Ser Gly Ala Arg Arg Leu Glu Thr
 850 855 860

Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
865 870 875 880

Pro Gly Pro Leu Ser Gly Gln Ser Val Asn Ile Asp Leu Leu Pro Val
885 890 895

Glu Leu Arg Leu Gln Ile Ile Gln Arg Glu Arg Arg Arg Lys Glu Leu
900 905 910

Phe Arg Lys Lys Asn Lys Ala Ala Ala Val Ile Gln Arg Ala Trp Arg
915 920 925

Ser Tyr Gln Leu Arg Lys His Leu Ser His Leu Arg His Met Lys Gln
930 935 940

Leu Gly Ala Gly Asp Val Asp Arg Trp Arg Gln Glu Ser Thr Ala Leu
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Leu Leu Gln Val Trp Arg Lys Glu Leu Glu
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<400> 36

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Gln Val His Ala Ala Ala Val Asn Gly Asp Lys Gly Ala Leu Gln Arg
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Leu Ile Val Gly Asn Ser Ala Leu Lys Asp Lys Glu Asp Gln Phe Gly
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Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
50          55          60

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Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
65          70          75          80

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Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
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Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
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Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160

Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175

Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
 180 185 190

Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
 195 200 205

Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
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Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
 225 230 235 240

Thr Ser Tyr Glu Ser Cys Asn Ile Thr Ser Tyr Asp Asn Leu Phe Arg
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Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
 260 265 270

Leu Leu Leu Glu Arg Asn Lys Ser Gly Thr Ile Pro Ser Asp Ser Gln
 275 280 285

Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
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Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
 305 310 315 320

Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
 325 330 335

Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
 340 345 350

Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
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His Val Ser Thr Val Lys Leu Leu Leu Glu Asn Asn Ala Gln Val Asp
 370 375 380

Ala Thr Asp Val Met Lys His Thr Pro Leu Phe Arg Ala Cys Glu Met
 385 390 395 400

Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
 405 410 415

Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
 420 425 430

Gly Gly Asn Ala Asp Val Cys Gln Ile Leu Ile Glu Asn Lys Ile Asn
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Pro Asn Val Gln Asp Tyr Ala Gly Arg Thr Pro Leu Gln Cys Ala Ala
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Tyr Gly Gly Tyr Ile Asn Cys Met Ala Val Leu Met Glu Asn Asn Ala
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Asp Pro Asn Ile Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp Ser
 485 490 495

Cys Asn Asn Gly Tyr Leu Asp Ala Ile Lys Leu Leu Leu Asp Phe Ala
 500 505 510

Ala Phe Pro Asn Gln Met Glu Asn Asn Glu Glu Arg Tyr Thr Pro Leu
 515 520 525

Asp Tyr Ala Leu Leu Gly Glu Arg His Glu Val Ile Gln Phe Met Leu
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Glu His Gly Ala Leu Ser Ile Ala Ala Ile Gln Asp Ile Ala Ala Phe
 545 550 555 560

Lys Ile Gln Ala Val Tyr Lys Gly Tyr Lys Val Arg Lys Ala Phe Arg
 565 570 575

Asp Arg Lys Asn Leu Leu Met Lys His Glu Gln Leu Arg Lys Asp Ala
 580 585 590

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Gln Lys Gly Arg Arg Ser Pro Asp Ser Cys Arg Pro Gln Ala Leu Pro
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Cys Leu Pro Ser Thr Gln Asp Val Pro Ser Arg Gln Ser Arg Ala Pro
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Asp Ser Arg Gly Ser Pro Gly Gly Ser Leu Gly Gly Ala Leu Gln Lys
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Glu Gln His Val Ser Ser Asp Leu Gln Gly Thr Asn Ser Arg Arg Pro
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Asn Glu Thr Ala Arg Glu His Ser Lys Gly Gln Ser Ala Cys Val His
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Phe Arg Pro Asn Glu Gly Ser Asp Gly Ser Arg His Pro Gly Val Pro
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Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
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Lys Gly Lys Gly Phe Val Lys Gln Pro Ser Cys Ile Arg Val Ala Gly
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Pro His Asp Ser His Trp Lys Pro Ser Arg Arg His Asp Thr Glu Pro
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Glu Ala Val His Ala Gly Gln Asn Pro Pro His His Arg Thr Pro Arg
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Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
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Pro Gln Ser Thr Glu Glu Leu Arg Ser Gly Ala Arg Arg Leu Glu Thr
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Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
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<400> 38

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Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
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Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
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Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
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Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
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Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
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Ser Lys Gln Pro Pro Ala Gly Asn Val Ala Gln Gly Pro Glu Pro Arg
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Asp Ser Arg Gly Ser Pro Gly Gly Ser Leu Gly Gly Ala Leu Gln Lys
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Glu Gln His Val Ser Ser Asp Leu Gln Gly Thr Asn Ser Arg Arg Pro
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Asn Glu Thr Ala Arg Glu His Ser Lys Gly Gln Ser Ala Cys Val His
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Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
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Pro Asp Glu Lys Gly Glu Asp Ser Arg Arg Ala Gly Ala Ser Leu Pro
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Lys Ala Lys Cys Ala Pro Gln Lys Arg Arg Thr Gln Glu Leu Arg Gly
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Gly Arg Cys Ser Pro Ala Gly Ser Ser Arg Pro Gly Ser Ala Arg Gly
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Glu Ala Val His Ala Gly Gln Asn Pro Pro His His Arg Thr Pro Arg
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Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
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Pro Gln Ser Thr Glu Glu Leu Arg Ser Gly Ala Arg Arg Leu Glu Thr
 850 855 860

Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
 865 870 875 880

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Arg Thr Pro Leu Met Tyr Cys Val Leu Ala Asp Arg Leu Asp Cys Ala
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Asp Ala Leu Leu Lys Ala Gly Ala Asp Val Asn Lys Thr Asp His Ser
 65 70 75 80

Gln Arg Thr Ala Leu His Leu Ala Ala Gln Lys Gly Asn Tyr Arg Phe
 85 90 95

Met Lys Leu Leu Leu Thr Arg Arg Ala Asn Trp Met Gln Lys Asp Leu
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Glu Glu Met Thr Pro Leu His Leu Thr Thr Arg His Arg Ser Pro Lys
 115 120 125

Cys Leu Ala Leu Leu Leu Lys Phe Met Ala Pro Gly Glu Val Asp Thr
 130 135 140

Gln Asp Lys Asn Lys Gln Thr Ala Leu His Trp Ser Ala Tyr Tyr Asn
 145 150 155 160

Asn Pro Glu His Val Lys Leu Leu Ile Lys His Asp Ser Asn Ile Gly
 165 170 175

Ile Pro Asp Val Glu Gly Lys Ile Pro Leu His Trp Ala Ala Asn His
180 185 190

Lys Asp Pro Ser Ala Val His Thr Val Arg Cys Ile Leu Asp Ala Ala
195 200 205

Pro Thr Glu Ser Leu Leu Asn Trp Gln Asp Tyr Glu Gly Arg Thr Pro
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Leu His Phe Ala Val Ala Asp Gly Asn Val Thr Val Val Asp Val Leu
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Thr Ser Tyr Glu Ser Cys Asn Ile Thr Ser Tyr Asp Asn Leu Phe Arg
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Thr Pro Leu His Trp Ala Ala Leu Leu Gly His Ala Gln Ile Val His
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Leu Leu Leu Glu Arg Asn Lys Ser Gly Thr Ile Pro Ser Asp Ser Gln
275 280 285

Gly Ala Thr Pro Leu His Tyr Ala Ala Gln Ser Asn Phe Ala Glu Thr
290 295 300

Val Lys Val Phe Leu Lys His Pro Ser Val Lys Asp Asp Ser Asp Leu
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Glu Gly Arg Thr Ser Phe Met Trp Ala Ala Gly Lys Gly Ser Asp Asp
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Val Leu Arg Thr Met Leu Ser Leu Lys Ser Asp Ile Asp Ile Asn Met
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Ala Asp Lys Tyr Gly Gly Thr Ala Leu His Ala Ala Ala Leu Ser Gly
355 360 365

His Val Ser Thr Val Lys Leu Leu Leu Glu Asn Asn Ala Gln Val Asp
370 375 380

Ala Thr Asp Val Met Lys His Thr Pro Leu Phe Arg Ala Cys Glu Met
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Gly His Lys Asp Val Ile Gln Thr Leu Ile Lys Gly Gly Ala Arg Val
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Asp Leu Val Asp Gln Asp Gly His Ser Leu Leu His Trp Ala Ala Leu
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Gly Gly Asn Ala Asp Val Cys Gln Ile Leu Ile Glu Asn Lys Ile Asn
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Pro Asn Val Gln Asp Tyr Ala Gly Arg Thr Pro Leu Gln Cys Ala Ala
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Tyr Gly Gly Tyr Ile Asn Cys Met Ala Val Leu Met Glu Asn Asn Ala
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Asp Pro Asn Ile Gln Asp Lys Glu Gly Arg Thr Ala Leu His Trp Ser
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Cys Asn Asn Gly Tyr Leu Asp Ala Ile Lys Leu Leu Leu Asp Phe Ala
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Ala Phe Pro Asn Gln Met Glu Asn Asn Glu Glu Arg Tyr Thr Pro Leu
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Glu His Gly Ala Leu Ser Ile Ala Ala Ile Gln Asp Ile Ala Ala Phe
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Phe Arg Pro Asn Glu Gly Ser Asp Gly Ser Arg His Pro Gly Val Pro
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Ser Val Glu Lys Ser Arg Gly Glu Thr Ala Gly Asp Glu Arg Cys Ala
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Asn Lys Val Thr Gln Ala Lys Leu Thr Gly Gly Leu Tyr Ser His Leu
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Ser Thr Leu Ser Glu Asp Phe Gln Val Ser Lys Glu Thr Asp Pro Ala
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Lys Leu Pro Ala Gln Glu Ala Pro Val Pro Pro Ser Ala Tyr Glu Ala
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